Tools and Accessories

Products

- Electric, bench top, and hand tube benders
- Hydraulic swaging units, preswaging tool, and gap inspection gauges
- Tee, ratchet, and open-end wrenches
- Accessories including tube and hose cutters, deburring tools, liquid leak detectors, and thread lubricants and sealants

Swagelok

Contents

Tube Benders

Electric 2
Bench Top 3
Hand 4

Swaging Units

Multihead Hydraulic 5
Air-Actuated Hydraulic 5
Preswaging Tool 6
Gap Inspection Gauges 6

Wrenches

Tee 7
Ratchet 7
Open End 8

Accessories

Tube Cutter 9
Tube Sawing Guide 9
Tube Deburring Tools 9
Tube Gripper Pad 9
Groove Cutter 10
Hose Cutters 10
Tube Support System 10
Liquid Leak Detectors 11
Thread Lubricants 12
Sealants 13

Tube Benders

Swagelok® benders provide high-quality bends on fractional and metric tubing made from materials that can be used with Swagelok tube fittings. These easy-to-use tube benders reduce installation time and effort as well as the potential for wrinkling or other damage to the tubing during bending.

Electric Tube Benders

Features

- Electronic control
- 1 to 110° bending range
- 1 to 2 in. outside diameter (0.049 to 0.220 in. wall thickness) and 25 to 50 mm outside diameter (1.2 to 5.0 mm wall thickness) tubing range
- One bend shoe for 1, 1 1/4, 1 1/2, and 2 in. sizes
- One bend shoe for 25, 32, 38, and 50 mm sizes
- CE compliant

Dimensions

- Dimensions—vertical position:
  Width—29 in. (74 cm)
  Depth—30 in. (76 cm)
  Height—44 in. (112 cm)
- Weight—420 lb (191 kg)

Power Requirements

MS-TBE-1—115 V (ac), 50/60 Hz; maximum current—13 A

MS-TBE-2—230 V (ac), 50/60 Hz; maximum current—7 A

See Ordering Information, page 4.

Technical Data

Minimum tube length, bend radius, and wall thickness limits required to make a 90° bend in annealed tubing are listed below. See Swagelok *Tubing Data* for suggested tubing wall thickness for use with Swagelok tube fittings.

Fractional Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Carbon Steel Wall Thickness Min/Max	Stainless Steel Wall Thickness Min/Max
Dimensions, in.				
1	20.5	4	0.049/0.120	0.065/0.120
1 1/4	22.8	5	0.065/0.180	0.083/0.156
1 1/2	25.5	6	0.083/0.220	0.090/0.188
2	32.0	8	0.095/0.220	0.109/0.188

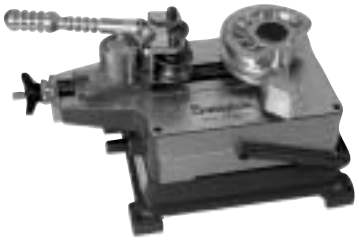
Metric Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Carbon Steel Wall Thickness Min/Max	Stainless Steel Wall Thickness Min/Max
Dimensions, mm				
25	520	103	1.2/3.0	1.8/3.0
32	582	126	2.0/4.0	2.0/4.0
38	648	152	2.2/4.5	2.2/4.5
50	810	203	—	3.0/5.0

Bench Top Tube Benders

Features

- Rugged, lightweight aluminum construction
- 1 to 180° bending range
- 1/4 to 1 in. outside diameter (0.028 to 0.120 in. wall thickness) and 12 to 30 mm outside diameter (1 to 3 mm wall thickness) tubing range
- Steel bend shoes required for 1 in. outside diameter tubing with greater than 0.095 in. wall thickness, 25 mm tubing with greater than 2.4 mm wall thickness, and all sizes of SAF 2507™ tubing
- Includes grease gun and metal carrying case for storage
- Manual model can be operated with a 1/2 in. drill motor using optional torque clutch and support arm.
- CE compliant



Manual Model

Electric Model

Dimensions

- Dimensions—tube bender in case:
  Width—21 in. (53 cm)
  Depth—11 in. (28 cm)
  Height—14 1/2 in. (37 cm)
- Weight—tube bender in case, excluding tools:
  Manual model—75 lb (34 kg)
  Electric model—79 lb (36 kg)

Power Requirements

(electric model)

MS-BTB-1—110 V (ac), 50/60 Hz; maximum current—10 A

MS-BTB-2—230 V (ac), 50/60 Hz; maximum current—5 A

See Ordering Information, page 4.

Technical Data

Minimum tube length, bend radius, and wall thickness limits required to make a 90° bend in annealed tubing are listed below. See Swagelok *Tubing Data* for suggested tubing wall thickness for use with Swagelok tube fittings.

Fractional Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Carbon Steel Wall Thickness Min/Max	Stainless Steel Wall Thickness Min/Max
Dimensions, in.				
1/4	7.00	1.4	0.028/0.065	
3/8			0.035/0.065	0.035/0.083
1/2			0.035/0.083	
5/8	8.50	1.8	0.035/0.095	0.049/0.095
3/4	9.75	2.2	0.049/0.109	
7/8	10.5	2.6		
1	12.2	3.2	0.049/0.120	0.065/0.120

Metric Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Carbon Steel Wall Thickness Min/Max	Stainless Steel Wall Thickness Min/Max
Dimensions, mm				
12	178	36	1.0/2.2	1.0/2.0
16	216	46	1.0/2.5	1.0/2.2
18	248	55	1.2/2.5	
20		67	1.2/2.8	
22	267			
25	311	82	1.2/3.0	1.8/3.0
28	381	112	1.8/3.0	
30			2.0/3.0	

Options and Accessories

- Individual tool kits with aluminum or steel bend shoes may be ordered separately. Steel bend shoes are required for 1 in. outside diameter tubing with greater than 0.095 in. wall thickness, 25 mm tubing with greater than 2.4 mm wall thickness, and all sizes of SAF 2507 tubing.

  To order, add a size designator from the tables below.

  Example: MS-BTT-K-**4**

Individual Tool Kits	Basic Ordering Number
Aluminum	MS-BTT-K-XX①
Steel	MS-BTT-K-SXX

① Not available in 28 and 30 mm sizes.

Fractional Size, in.	Size Designator
1/4	4
3/8	6
1/2	8
5/8	10
3/4	12
7/8	14
1	16

Metric Size, mm	Size Designator
12	12M
16	16M
18	18M
20	20M
22	22M
25	25M
28	28M
30	30M

- The tripod provides portable support for the tube bender.
  Ordering number: **MS-BTB-A-TP**
- The torque clutch and support arm kit allows the manual model to be operated with a 1/2 in. drill motor.
  Ordering number: **MS-BTB-A-TCSA**
- The foot pedal can be used in place of the toggle switch to operate the electric model.
  Ordering number: **MS-BTB-A-FS**

For additional accessories, see the Swagelok *Bench Top Tube Bender User's Manual.*

Bench Top and Electric Tube Benders

Ordering Information

1. Select a basic ordering number.

Bender Type	Ordering Number
Bench Top	
Manual	MS-BTB-M
Electric—110 V (ac)	MS-BTB-1
Electric—230 V (ac)	MS-BTB-2
Electric	
115 V (ac)	MS-TBE-1
230 V (ac)	MS-TBE-2

Example: **MS-BTB-1**

2. Add a power cord① designator (electric models).

Geographic Region	Voltage	Plug Type	Cord/ Wire Type	Power Cord Designator
North America	110/120 V (ac) 50/60 Hz	NEMA 5-15	AWG/ SJT	1
	220/240 V (ac) 50/60 Hz	NEMA 6-15		2
Japan/Taiwan	110/120 V (ac) 50/60 Hz	NEMA 5-15	Harmonized	3
	220/240 V (ac) 50/60 Hz	NEMA L6-20		4
United Kingdom	110/120 V (ac) 50/60 Hz	IEC-309		5
	220/240 V (ac) 50/60 Hz	BS 1363		6
Continental Europe/Korea	220/240 V (ac) 50/60 Hz	CEE 7/7		7
Australia/ New Zealand	220/240 V (ac) 50/60 Hz	AS 3112		8

Example: MS-BTB-1**-1**

① For more information, see the Swagelok *Electrical Power Cord and Plug Options* catalog.

3. Add a user's manual language designator.

User's Manual Language	Designator	User's Manual Language	Designator
Chinese	-C	German	-G
French	-F	Japanese	-J
English	-E	Spanish	-S

Example: MS-BTB-1-1**-E**

4. Add a tool kit designator.

Tool Kit	Designator
Bench Top	
Aluminum fractional bend shoes and steel rollers (1/2, 5/8, 3/4, 7/8, and 1 in.)	-FKIT
Aluminum metric bend shoes and steel rollers (12, 16, 18, 20, 22, and 25 mm)	-MKIT
Electric	
Fractional bend shoe, roller towers, and tube clamps (1, 1 1/4, 1 1/2, and 2 in.)	-FKIT
Metric bend shoe, roller towers, and tube clamps (25, 32, 38, and 50 mm)	-MKIT

Example: MS-BTB-1-1-E-**FKIT**

Bench top tube bender only: To substitute a steel bend shoe for a 1 in. or 25 mm aluminum bend shoe, add **-S16** to the fractional kit ordering number or **-S25M** to the metric kit ordering number.

Example: MS-BTB-1-1-E-FKIT**-S16**

Hand Tube Benders

Swagelok hand tube benders provide consistent, high-quality bends in tubing made from materials that can be used with Swagelok tube fittings.

Features

- The hand tube bender is available in 1/4, 5/16, 3/8, and 1/2 in., as well as 6, 8, 10, and 12 mm tubing sizes.
- Clevis handle design provides enhanced leverage for bends greater than 90°.
- Roll dies reduce bending force and tube ovality, as compared to conventional slide block design.
- 1 to 180° bending range.

The hand tube bender cannot be used for SAF 2507 tubing over 1/4 in.

Ordering Information

Tube OD	Bend Radius	Ordering Number
Dimensions, in.		
1/4	0.56	MS-HTB-4T
1/4	0.75	MS-HTB-4
5/16	0.94	MS-HTB-5
3/8		MS-HTB-6T
1/2	1.50	MS-HTB-8
Dimensions, mm		
6	15	MS-HTB-6M
8	24	MS-HTB-8M
10		MS-HTB-10M
12	38	MS-HTB-12M

Swaging Units

Multihead Hydraulic Swaging Unit (MHSU)

Features

- Preswages Swagelok ferrules onto tubing
- Provides Swagelok tube fitting connections that are 100 % gaugeable upon initial installation.
  Use MHSU gap inspection gauges supplied with the unit.
- Is available in two unit sizes, with a choice of interchangeable fractional or metric tooling for:
  - 1/2 to 1 in. and 12 to 25 mm tubing and tube adapters
  - 1 to 2 in. and 25 to 50 mm tubing and tube adapters
- Places no initial strain on nut or fitting body threads or on body seal surfaces
- **Must** be used to install 1 1/4, 1 1/2, and 2 in. and 28, 30, 32, 38, and 50 mm Swagelok tube fittings
- Is standard with a tube marking feature to indicate when tube is properly bottomed in the unit
- Is available with a support base (as shown). To order, add **-B** to the ordering number.
  Example: MS-MHSU-U-E**-B**
- Fits neatly in a rugged plastic carrying case
- Reduces assembly and installation time and operator error.

The MHSU cannot be used for SAF 2507 tubing 1/2 in. and under.

For 5/8 and 3/4 in. SAF 2507 tubing, order the 1 in./25 mm and over unit and SAF 2507 tooling and gauges.

Recommended Minimum Wall Thickness of Tubing for use with the MHSU

Fractional Tubing		
Tooling Size in.	Tubing Wall, in.	
	Steel	Stainless Steel
1/2	0.049	0.065
5/8	0.065	
3/4		
7/8		
1		0.083
1 1/4	0.083	0.095
1 1/2		
2	0.095	0.109

Metric Tubing		
Tooling Size mm	Tubing Wall, mm	
	Steel	Stainless Steel
12	1.5	1.5
14		
15		
16		1.8
18		
20	2.0	2.0
22		
25		
28	2.2	2.2
30		
32		
38		2.5
50		

Use of tubing below the recommended minimum wall thickness may result in the tube sticking in the die head.

Ordering Information

MHSU	Ordering Number
MHSU Only *(Unit, hydraulic hose, retaining ring pliers, safety glasses, and instructions)*	
Up to 1 in./25 mm unit	MS-MHSU-U-E
1 in./25 mm and over unit	MS-MHSU-O-E
MHSU with Tooling Kit *(MHSU only, plus die head sets, chamfer block, and gap inspection gauges)*	
Fractional up to 1 in. unit	MS-MHSU-U-E-FKIT-M
Fractional 1 in. and over unit	MS-MHSU-O-E-FKIT-M
Metric up to 25 mm unit	MS-MHSU-U-E-MKIT-M
Metric 25 to 38 mm unit①	MS-MHSU-O-E-MKIT-M

① 50 mm tooling available separately.

Air-Actuated Hydraulic Swaging Unit (AHSU)

Features

- Preswages Swagelok ferrules onto tubing
- Provides Swagelok tube fitting connections that are 100 % gaugeable upon initial installation
- Requires only one unit with interchangeable tooling to swage 1/4 to 1/2 in. and 6 to 12 mm Swagelok tube fitting ferrule sizes
- Places no initial strain on nut or fitting body threads or on body seal surfaces
- Requires no threading of nut on or off the tooling
- Fits neatly in a rugged plastic carrying case
- Reduces assembly and installation time and operator error.

The AHSU cannot be used for SAF 2507 tubing.

Ordering Information

AHSU	Ordering Number
AHSU Only *(Unit, hex key, adapter plates, safety glasses, and instructions)*	
AHSU only	MS-AHSU-E
AHSU with Tooling Kit *(AHSU only, plus die head sets, and gap inspection gauges)*	
1/4, 3/8, 1/2 in. unit	MS-AHSU-E-FKIT
6, 8, 10, 12 mm unit	MS-AHSU-E-MKIT

MHSU and AHSU Options and Accessories

Hydraulic swaging units come with tooling kits and English-language instructions. To order separate tooling kits or swaging units with instructions in another language, see the *Hydraulic Swaging Unit—Multihead (MHSU)* or *Hydraulic Swaging Unit—Air-Actuated (AHSU)* catalog, or contact your authorized Swagelok representative.

Preswaging Tool

For Swagelok tube fitting installations in close quarters, the Swagelok preswaging tool is a convenient accessory.

Features

- Preswages ferrules onto the tube
- Enables the installer to work in a more open, safe area
- Makes it possible to complete the installation by following retightening instructions for Swagelok tube fittings.

Ordering Information

Fractional Tube OD in.	Ordering Number
Female Nut	
1/16	MS-ST-1F0
1/2	MS-ST-8F0
Male Nut	
1/16	MS-ST-100
1/8	MS-ST-200
3/16	MS-ST-300
1/4	MS-ST-400
5/16	MS-ST-500
3/8	MS-ST-600
1/2	MS-ST-810
5/8	MS-ST-1010
5/8 (SAF 2507)	MS-ST-2507-1010
3/4	MS-ST-1210
3/4 (SAF 2507)	MS-ST-2507-1210
7/8	MS-ST-1410
1	MS-ST-1610

Metric Tube OD mm	Ordering Number
3	MS-ST-3M0
4	MS-ST-4M0
6	MS-ST-6M0
8	MS-ST-8M0
10	MS-ST-10M0
12	MS-ST-12M0
14	MS-ST-14M0
15	MS-ST-15M0
16	MS-ST-16M0
18	MS-ST-18M0
20	MS-ST-20M0
22	MS-ST-22M0
25	MS-ST-25M0

Gap Inspection Gauges

On initial installation, the Swagelok gap inspection gauge assures the installer or inspector that a fitting has been sufficiently tightened.

Position the Swagelok gap inspection gauge next to the gap between the nut and body.

If the gauge **will not** enter the gap, **the fitting is sufficiently tightened.**

If the gauge **will** enter the gap, **additional tightening is required.**

Ordering Information

For Installation Using the MHSU

Female Nut Fitting Size		Ordering Number
in.	mm	
1/2①	12	MS-MHSU-IG-810
5/8②	14, 15, 16	MS-MHSU-IG-1010
5/8 (SAF 2507)	—	MS-MHSU-IG-2507-1010
3/4②	18	MS-MHSU-IG-1210
3/4 (SAF 2507)	—	MS-MHSU-IG-2507-1210
7/8	20, 22	MS-MHSU-IG-1410
1	25	MS-MHSU-IG-1610-1
—	28	MS-MHSU-IG-28M0-1
	30	MS-MHSU-IG-30M0-1
1 1/4	—	MS-MHSU-IG-2000-2
—	32	MS-MHSU-IG-32M0-1
—	38	MS-MHSU-IG-38M0-1
1 1/2	—	MS-MHSU-IG-2400-1
—	50	MS-MHSU-IG-50M0-1
2	—	MS-MHSU-IG-3200-1

① The MHSU cannot be used for SAF 2507 tubing 1/2 in. and under.

② For 5/8 and 3/4 in. SAF 2507 tubing, order the 1 in./25 mm and over unit and SAF 2507 tooling and gauge.

For Installation Using the AHSU

Female Nut Fitting Size		Ordering Number
in.	mm	
1/4, 3/8, 1/2	—	MS-AHSU-IG-468
—	6, 8, 10, 12	MS-AHSU-IG-612M

For Installation Using a Wrench

Fitting Size		Ordering Number
in.	mm	
Male Nut		
1/16	—	MS-IG-1F0
1/8	2, 3	MS-IG-2F0
Female Nut		
1/16	—	MS-IG-100
1/8	2, 3	MS-IG-200
3/16	4	MS-IG-300
1/4	6	MS-IG-400
1/4, 3/8, 1/2	6, 12	MS-IG-468
1/4, 1/2	6, 8, 10, 12	MS-IG-612M
5/16	8	MS-IG-500
3/8	—	MS-IG-600
—	10	MS-IG-10M0
1/2	12	MS-IG-810
5/8	14, 15, 16	MS-IG-1010
5/8 (SAF 2507)	—	MS-IG-2507-1010
3/4	18	MS-IG-1210
3/4 (SAF 2507)	—	MS-IG-2507-1210
7/8	20, 22	MS-IG-1410
1	25	MS-IG-1610

Wrenches

Tee Wrench

The tee wrench provides positive backup support when installing Swagelok union tees and crosses.

Features

- Allows user to hold fitting body firmly and precisely
- Is available in a variety of sizes
- Fits and carries easily in tool box, pouch, or belt
- Head and handle constructed of stainless steel
- Features a cushioned vinyl grip and generous gripping area for handle
- Holds tee in various orientations

Ordering Information

For Swagelok Gaugeable Union Tees and Crosses			
Sizes	**Ordering Number**	**Tee**	**Cross**
1/4 in. and 6 mm	MS-TW-4	✓	✓
5/16 and 3/8 in. and 8 mm	MS-TW-6	✓	✓
10 mm	MS-TW-10M	✓	①
1/2 in. and 12 mm	MS-TW-8	✓	✓

① Use MS-TW-8 on the 10 mm Swagelok cross.

Ratchet Wrench

The ratchet wrench is designed for use on Swagelok nuts for fitting installation.

Features

- 11 fractional and metric sizes are available.
- 1/12 turn ratchet facilitates use in close quarters.
- Heavy-duty construction includes:
  - heat-treated, black oxide-plated steel handle
  - black-oxide plated steel jaws
  - stainless steel spring and fasteners.

Ordering Information

Tube Fitting Size	Ordering Number	Wrench Length
Dimensions, in.		
1/8	MS-RW-200	5.38
3/16	MS-RW-300	
1/4	MS-RW-400	7.25
5/16	MS-RW-500	
3/8	MS-RW-600	
1/2	MS-RW-810	10.1
Dimensions, mm		
3	MS-RW-3M0	136
6	MS-RW-6M0	184
8	MS-RW-8M0	
10	MS-RW-10M0	
12	MS-RW-12M0	257

Ratchet Wrench Pouch

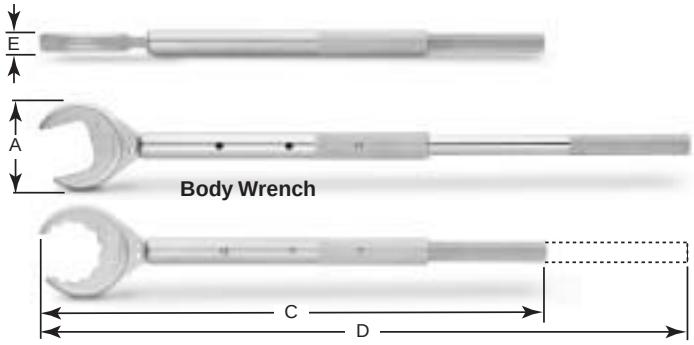
A heavy-duty pouch is available for holding up to six Swagelok ratchet wrenches.

Ordering Number: **MS-RWP**

Open-End Wrenches

Features

- Swagelok open-end wrenches are available in body and nut styles.
- These wrenches are designed to install Swagelok tube fittings (1 1/4, 1 1/2, and 2 in.; 32, 38, and 50 mm sizes) after assembly using Swagelok's hydraulic swaging unit.
- The body wrench is box ended and can be used with shapes or hex bodies.
- The nut wrench has a multiple internal hex to allow easy fixturing of the nut when space is limited.
- The hole in the wrench head enables wrenches to be secured by a lanyard for installations in elevated areas.
- The telescoping feature of the knurled handle provides additional leverage when needed.



Nut Wrench

Fitting Size	Ordering Number	Dimensions				Weight
		A	C	D	E	
Dimensions, in.						lb
1 1/4	MS-NW-20(1.88)	3.16	18.0	22.8	0.73	3
1 1/2	MS-NW-24(2.25)	3.88	26.1	33.2	0.99	6
2	MS-NW-32(3.00)	5.06	32.5	42.0	1.25	11
Dimensions, cm						kg
32	MS-NW-32M(50M)	8.53	46.2	58.4	1.85	1.4
38	MS-NW-38M(60M)	10.1	66.6	84.6	2.51	3.2
50	MS-NW-32(3.00)	12.9	82.6	106.7	3.18	5.0

Body Wrench

Fitting Size	Flat Size	Ordering Number	Dimensions				Weight
			A	C	D	E	
Dimensions, in.							lb
1 1/4	1 11/16	MS-BW-20(1.69)	3.16	18.0	22.8	0.73	3
	1 3/4	MS-BW-20(1.75)					
1 1/2	2	MS-BW-24(2.00)	3.88	26.1	33.2	0.99	6
	2 1/8	MS-BW-24(2.13)					
2	2 3/4	MS-BW-32(2.75)	5.06	32.5	42.0	1.25	11
Dimensions, cm							kg
32	46	MS-BW-32M(46M)	8.53	46.2	58.4	1.85	1.4
	50	MS-BW-32M(50M)					
38	60	MS-BW-38M(55M)	10.1	66.6	84.6	2.51	3.2
50	2 3/4 in.	MS-BW-32(2.75)	12.9	82.6	106.7	3.18	5.0

Dimensions are for reference only and are subject to change.

Accessories

Tube Cutter

The Swagelok tube cutter cuts stainless steel, soft copper, and aluminum tubing from 3/16 to 1 in. and 4 to 25 mm outside diameter.

Features

- Flare-out and work hardening of tube end is reduced.
- Knobs on handle are spaced in 1/8-turn increments to provide easy reference when advancing cutter wheel.

Ordering Number:
MS-TC-308

Replacement Cutting Wheel Ordering Number:
MS-TCW-308

Tube Sawing Guide

The tube sawing guide holds tubing to enable fast, accurate cutting with a hacksaw. The guide helps reduce tubing preparation time, thereby speeding system assembly.

Features

- Specially designed clamp holds tubing accurately, without distorting or scratching the tube surface.
- Precision guides easily position blade for all cuts.
- Recess under guide plates provides blade clearance at end of stroke.
- Retractable spring-loaded clamp allows tubing to be inserted easily.
- Guide accepts tubing sizes from 3/16 to 1 in. and 4 to 25 mm outside diameter.
- Design permits easy mounting in vise.

Ordering Number:
MS-TSG-16

Tube Deburring Tools

After use of the tube cutter or tube sawing guide, Swagelok deburring tools deburr stainless steel, steel, and hard alloy tube ends.

Features

- For deburring the inside and outside diameters of 3/16 to 1 1/2 in. and 4 to 38 mm tubing
- Steel blades for long life
- Rugged, heavy-duty die-cast housing

Ordering Number:
MS-TDT-24

For deburring the inside diameter of 1/4, 3/8, and 9/16 in. stainless steel tubing.

Ordering Number: **MS-44CT-27**

Tube Gripper Pad

The Swagelok tube gripper pad allows users to hold tubing with a firm, secure grip while using the tube cutter or tube deburring tool.

Ordering Number:
MS-07-25

Accessories

Groove Cutter

The Swagelok groove cutter grooves PFA tubing used with Swagelok PFA tube fittings.

For 1/8 in. tubing

For 1/4, 3/8, and 1/2 in. tubing

Tube OD	Ordering Number
1/8 in.	MS-GC-2
1/4 in.	MS-GC-4
3/8 in.	MS-GC-6
1/2 in.	MS-GC-8

Hose Cutters

Two hose cutters are available.

The Swagelok hose cutter is used to cut push-on hose or soft plastic tubing up to 1 1/4 in. (32 mm) outside diameter.

Ordering Number:
MS-HC-SC

The Swagelok thermoplastic hose cutter is used to cut Swagelok thermoplastic hose and plastic tubing up to 1 1/2 in. (38 mm) outside diameter.

Ordering Number:
MS-HC-SC-1

Tube Support System

The Swagelok tube support system organizes and supports tube and hose runs in sizes from 1/4 to 1 in. (6 to 26 mm) outside diameter.

Features

- Stainless steel, carbon steel, and polyethylene construction
- Wall- and channel-mounted options
- Single- and multiple-line support

For ordering information, see the Swagelok *Tube Supports* catalog.

Liquid Leak Detectors

Snoop® and Real Cool Snoop® liquid leak detectors detect gas leaks in hard-to-reach areas.

Snoop

Features

- Sustained bubble action works even on very small leaks and vertical surfaces.
- Bubble size indicates approximate leak rate.
- Flexible snooper tube extends for hard-to-reach areas.
- Nontoxic, noncorrosive, nonflammable formula does not contain chlorine, aliphatic amines, or ammonium compounds.
- Formula dries clean, without staining.

Technical Information

- **Composition:** Deionized water and a surfactant.
- **Temperature rating:** Can be used over a temperature range of 27 to 200°F (–2 to 93°C).
- **Specifications:** Meets the performance requirements of:
  - MIL-PRF-25567 *Leak Detector Compound, Oxygen Systems, Type I, 1 to 70°C* (33 to 158°F).
  - NFPA 52 Section 3-12.2 *Leak Testing Compressed Natural Gas Vehicular Fuel System.*
  - EPA Part 60, Appendix A, Method 21, Section 4.3.3 *Alternative Screening Procedures Using Soap Solutions.*

⚠ Warning: Use Snoop liquid leak detector only on external surfaces. Do not use on internal surfaces.

Ordering Information

Size	Ordering Number	Snooper Tube
2 oz (59 mL)	MS-SNOOP-2OZ	6 in. (15 cm)
8 oz (236 mL)	MS-SNOOP-8OZ	12 in. (30 cm)
1 gal (3.8 L)	MS-SNOOP-GAL	—

Real Cool Snoop

Features

- Sustained bubble action works at temperatures as low as –65°F (–54°C), even on very small leaks and vertical surfaces.
- Bubble size indicates approximate leak rate.
- Flexible snooper tube extends for hard-to-reach areas.
- Noncorrosive, nonflammable formula does not contain chlorine, aliphatic amines, or ammonium compounds.
- Formula dries clean, without staining.

Technical Information

- **Composition:** Deionized water, a surfactant, and ethylene glycol to prevent freezing at low temperatures.
- **Temperature rating:** Can be used over a temperature range of –65 to 200°F (–54 to 93°C).
- **Specifications:** Meets the performance requirements of:
  - MIL-PRF-25567 *Leak Detector Compound, Oxygen Systems, Type II, –54 to 1°C* (–65 to 33°F).
  - NFPA 52 Section 3-12.2 *Leak Testing Compressed Natural Gas Vehicular Fuel System.*
  - EPA Part 60, Appendix A, Method 21, Section 4.3.3 *Alternative Screening Procedures Using Soap Solutions.*

⚠ Warning: Use Real Cool Snoop liquid leak detector only on external surfaces. Do not use on internal surfaces.

Ordering Information

Size	Ordering Number	Snooper Tube
8 oz (236 mL)	MS-RC-SNOOP-8OZ	12 in. (30 cm)
1 gal (3.8 L)	MS-RC-SNOOP-GAL	—

Material Safety Data Sheets are available from your authorized Swagelok representative or at www.swagelok.com/references/msds.asp.

Thread Lubricants

Silver Goop®

Oil-based thread lubricant for use on stainless steel and high-temperature alloys

Features

- Prevents galling
- Performs in temperatures up to 1500°F (815°C)
- Contains a nonmelting antiseize agent
- Lowers torque on threaded parts
- Stays in place between mating surfaces regardless of force applied
- Resists moisture

Ordering Information

Size	Ordering Number
1 oz (29.5 cm³) tube	MS-TL-SGT
1 lb (450 g) can	MS-TL-SGC

PURE Goop™

Halocarbon-based thread lubricant for use on titanium, stainless steel, steel, and nickel-based alloys

Features

- Resists galling
- Is chemically nonreactive with a wide range of materials
- Performs in temperatures up to 350°F (176°C)
- Is noncorrosive to metals
- Resists moisture

⚠ Warning: Do not use on aluminum or magnesium threads.

Ordering Information

Size	Ordering Number
1 oz (29.5 cm³) tube	MS-TL-PGT
1 lb (450 g) can	MS-TL-PGC

Blue Goop™

Oil-based thread lubricant for use on stainless steel, steel, titanium, aluminum, and nickel-based alloys

Features

- Resists galling
- Performs in temperatures up to 400°F (204°C)
- Resists water washout
- Is a deep blue color that is not affected by water
- Contains PTFE

Ordering Information

Size	Ordering Number
2 oz (59 cm³) tube	MS-TL-BGT
1 lb (450 g) can	MS-TL-BGC
55 lb (25 kg) bucket	MS-TL-BGG

VAC Goop®

Fluorosilicone-based thread lubricant for use on threads, O-rings, gaskets, glass seals, and metal parts in vacuum systems

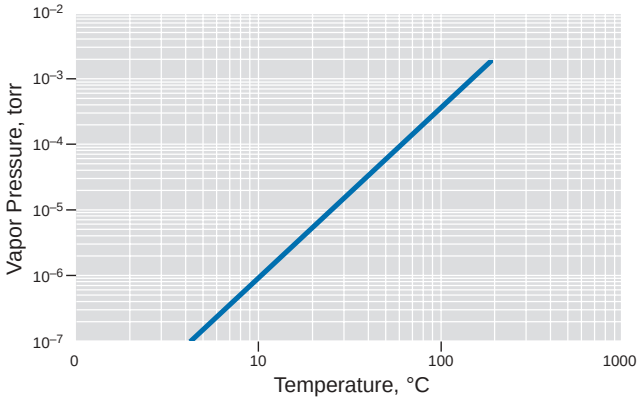
Features

- Resists galling
- Has extremely low vapor pressure
- Minimizes outgassing problems
- Is chemically nonreactive with a wide range of materials
- Performs in temperatures up to 300°F (148°C)
- Resists moisture

Ordering Information

Size	Ordering Number
1 oz (29.5 cm³) tube	MS-TL-VGT
1 lb (450 g) can	MS-TL-VGC

Temperature Versus Vapor Pressure



⚠ Request and read the Material Safety Data Sheets before using these products.

Material Safety Data Sheets are available from your authorized Swagelok representative or at www.swagelok.com/references/msds.asp.

Sealants

SWAK® Anaerobic Thread Sealant

Features

- Cures to a bond that resists vibration or shock
- Lubricates threads, preventing costly thread damage due to galling and seizing during assembly
- Allows low breakaway torque for easy-to-break connections, even after fully cured
- Is compatible with a wide range of chemicals
- Applies quickly and easily
- Clings to threads and will not shred or tear on assembly

Technical Information

Composition: Resin (containing methacrylic ester) and PTFE particles

Cure time: At room temperature, allow 24 h minimum before pressurizing①.

Pressure rating: To pipe or fitting working pressure up to 10 000 psig (689 bar), based on proper thread engagement

Temperature rating: –65 to 350°F (–53 to 176°C)

Viscosity: Greater than 100 000 cP, in accordance with ASTM D1824

Storage temperature: 45 to 85°F (7 to 29°C)

Shelf life: Five years at recommended storage temperature

① Cure time and sealing are dependent on many variables, such as storage conditions, cleanliness of threads, quality of threads, temperature, materials of construction, proper assembly, specific gravity of system media, and system operating pressures.

Ordering Information

Tube Size, cm^3	Ordering Number
6	MS-PTS-6
50	MS-PTS-50
250	MS-PTS-250

Some fluids and materials are NOT compatible with SWAK. While not intended to be a complete list, they include the following:

- Plastic pipe or valve components other than PTFE
- Halogens
- Freon
- Pure oxygen
- Ozone
- Hydrazine
- Nitrogen dioxide
- High concentrations of strong acids or bases
- Food, cosmetic, drug, or water systems for human consumption
- Vacuum systems where any hydrocarbon outgassing will affect performance

PTFE TAPE Thread Sealant

Features

- Material conforms to Commercial Item Description A-A-58092
- Temperatures up to 450°F (232°C)

Applications

- Plastics
- Aluminum
- Stainless steel
- Ceramic
- Synthetic rubber
- Carbon steel and special alloys
- Chemicals
- Corrosives
- Hydraulic fluids
- Refrigerants
- Aromatic fuels

⚠ **Caution: Tape should be used only on male tapered pipe threads. Do not use on flared, coned, or tube fitting ends.**

Ordering Information

Male Tapered Pipe Size	Tape Size	Ordering Number
1/8, 1/4, and 3/8 in.	1/4 by 576 in. (6.4 by 1463 cm)	MS-STR-4
1/2 in. and up	1/2 by 288 in. (12.7 by 732 cm)	MS-STR-8

Material Safety Data Sheets are available from your authorized Swagelok representative or at www.swagelok.com/references/msds.asp.

Safe Product Selection
When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Caution: Do not mix or interchange parts with those of other manufacturers.

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